CLAIMS

1. A wear-detection sensor comprising a body of electrically insulating material with an opening through which a flowable substance can pass, and an electrical conductor surrounding the opening and adapted to undergo a discernable change in conductivity as the insulating material is worn away by the flowable substance.

2. The wear-detection sensor of Claim 1, wherein the conductor is embedded in the insulating material.

3. The wear-detection sensor of Claim 1, wherein the insulating material is urethane.

4. The wear-detection sensor of Claim 1, wherein the body of insulating material and the conductor are parts of a printed circuit board.

5. The wear-detection sensor of Claim 4, further including signal processing circuitry mounted on the printed circuit board and connected to the conductor.

6. A wear-detection sensor, comprising a body of electrically insulating material with an opening through which a flowable substance can pass, and a plurality of electrical conductors disposed concentrically of the opening and adapted to successively undergo changes in conductivity as the opening increases in size due to abrasive wear of the insulating material by the flowable substance.

7. The wear-detection sensor of Claim 6, together with a monitor connected to the conductors for detecting the changes in conductivity to determine the amount of wear.

8. The wear-detection sensor of Claim 6, wherein the insulating material is urethane.

9. The wear-detection sensor of Claim 6, wherein the body of insulating material and the conductors are parts of a printed circuit board.

10. The wear-detection sensor of Claim 9, further including signal processing circuitry mounted on the printed circuit board and connected to the conductors.

11. A wear-detection sensor comprising a body of electrically insulating material positioned between two parts which carry a flowing substance, with an opening in the body through which the substance can pass, and an electrical conductor surrounding the opening and adapted to undergo a discernable change in conductivity as the insulating material is worn away by the flowing substance.

12. The wear-detection sensor of Claim 11, including at least one additional conductor disposed coaxially about the opening and adapted to undergo a change in conductivity as the insulating material near the additional conductor is worn away by the flowing substance.

13. The wear-detection sensor of Claim 11, wherein one of the two parts is the conically tapered separation chamber of a hydrocyclone.

14. The wear-detection sensor of Claim 11, wherein one of the two parts is a pipe.

15. The wear-detection sensor of Claim 11, wherein the insulating material is urethane.

16. The wear-detection sensor of Claim 11, wherein the body of insulating material and the conductors are parts of a printed circuit board.

17. The wear-detection sensor of Claim 16, further including signal processing circuitry mounted on the printed circuit board and connected to the conductors.

18. A wear-detection sensor comprising a body of insulating material adapted to be worn away in an outward direction by a substance flowing through a central opening in the body, a ring of electrically conductive material disposed concentrically of the opening and adapted to be worn away with the insulating material, and a gap in the ring between confronting end portions to which electrical connections are made to monitor continuity of the conductive material.

19. The wear-detection sensor of Claim 18, wherein the insulating material is urethane.

20. The wear-detection sensor of Claim 19, wherein the body of insulating material and the ring of conductive material are parts of a printed circuit board.

21. The wear-detection sensor of Claim 20, further including signal processing circuitry mounted on the printed circuit board and connected to the end portions of the conductive material.

22. A wear-detection sensor comprising a body of insulating material adapted to be worn away in an outward direction by a substance flowing through a central opening in the body, a plurality of concentric rings of electrically conductive material disposed concentrically of the opening and adapted to be successively worn away with the insulating material, and gaps in the rings defining end portions to which electrical connections are made to monitor continuity of the conductive material.

23. The wear-detection sensor of Claim 22, wherein the gaps are aligned radially on one side of the opening, with radially extending conductors connected to the end portions of the rings and the conductors connected to an inner ring passing through the gap in an outer ring.

24. A wear-detection sensor for a conduit having an opening for passing a flowable substance, comprising a body of electrically insulating material with an electrical conductor adapted to undergo a discernable change in conductivity as the insulating material is worn away by the flowable substance.

25. The wear-detection sensor of Claim 24, wherein the conductor consists of multiple spaced-apart conductive loops disposed at varying distances from an inner wall of said conduit.

26. The wear-detection sensor of Claim 24, wherein the conductor is embedded in the insulating material.

27. The wear-detection sensor of Claim 24, wherein the insulating material is urethane.

28. The wear-detection sensor of Claim 24, wherein the body of insulating material and the conductor are parts of a printed circuit board.

29. The wear-detection sensor of Claim 28, further including signal processing circuitry mounted on the printed circuit board and connected to the conductor.

30. The wear-detection sensor of Claim 24, wherein said body and conductor are substantially annular to conform to a tubular conduit.

31. The wear-detection sensor of Claim 24, wherein said body is shaped as a tab insert adapted to span across a wall of said conduit.

32. The wear-detection sensor of Claim 24, wherein said body is embedded in a protective lining of said conduit.